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ABSTRACT

This study examined the impact of work and family roles on the probability of students in early adulthood completing the associate or baccalaureate degree. It also looked at the effect of gender on degree completion and differences between adult associate and baccalaureate degree seekers. The study used data from the National Longitudinal Study of the High School Class of 1972 (NLS-72) and the fifth follow-up to this study in 1986. From these data two samples were used: associate degree seekers and baccalaureate degree seekers who were further divided into degree completers, active degree seekers, and inactive noncompleters. The study used five background variables and six intervening variables to determine the impact of family and employment roles on degree completion. Findings included the following: (1) a change in relationship status or birth of a child appeared to act as a catalyst to encourage students to continue and complete a degree; (2) having school-age children at the start of a period of enrollment slowed degree completion but did not stop it for all groups; (3) working full time was particularly detrimental to degree progress for baccalaureate degree seeking males and associate degree seeking females; and (4) though relationship patterns had little effect on degree outcomes, employment patterns had a substantial influence. (Contains 69 references.) (JB)

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THE IMPACT OF WORK AND FAMILY ROLES ON ASSOCIATE AND BACCALAUREATE DEGREE COMPLETION AMONG STUDENTS IN EARLY ADULTHOOD

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The Impact of Work and Family Roles on Associate and Baccalaureate Degree Completion Among Students in Early Adulthood

Barbara E. Hanniford and Mary Ann D. Sagaria

Adult students, the "new majority" at many colleges and universities, face competing work and family demands which may adversely affect achieving their educational goals. In 1987, persons 25 years of age or older comprised 35% of the U.S. undergraduate population (National Center for Education Statistics, 1992). Despite the importance of adults to higher education and the fact that young adults (those in their late 20s and 30s) often invest extraordinary personal efforts and financial resources to simultaneously pursue a degree, develop a career, establish personal relationships, and assume parental responsibilities, little is known about how work and family influence their persistence in higher education. Although adults frequently cite these activities and responsibilities as reasons for dropping out or stopping out of school (Brown & Robinson, 1988; Levitz & Noel, 1980; Swift, 1987; Weidman, 1985), research has largely failed to consider the effects of variations to the life course progression of student, worker, and family roles on adult degree completion.

The purpose of this research is to determine the impact of work and family roles on the probability of associate or baccalaureate degree completion among students in early adulthood. The study also examines the effect of gender on degree completion and differences between adult associate and baccalaureate degree seekers.

Perspectives

Studies by Hogan (1978), Marini (1984), and Rindfuss, Swicegood, and Rosenfeld (1987) have shown that the normative progression of student, worker, and family roles that was once thought to characterize the life course has considerable variation. As increasingly large numbers of adult students have

enrolled in higher education over the past two decades, and with increasing evidence of differentiated life patterns (Pallas, 1994), these researchers have begun to question the assumptions of a linear progression of life events. Nevertheless, Rindfuss et al. (1987) suggest that the implicit supposition of an orderly, linear life progression continues to be prevalent in the educational attainment literature.

This study builds upon three literatures--the **life course**, **status attainment**, and **student persistence**--in order to explicate degree completion of students in early adulthood. The life course perspective defines a field of inquiry and focuses on sequential events such as formal education, marriage, employment, and parenthood that comprise the life cycle (Elder, 1985; Gee, 1990; Pallas, 1994). This perspective provides a lens through which we consider the adult student role in relationship with competing roles of early adulthood. Much of the life course literature has examined the timing and order of major life events as well as determinants and consequences of different life patterns. One part of this literature examined age expectations or preferred timing for specific events. For example, Neugarten, Moore, and Lowe (1965) found marker events such as completion of formal schooling, entry into first full-time job, marriage, and childbirth had expected completion times. They also introduced the terminology of "on time" and "off time" to discuss age-appropriate timing for major life events such as completion of formal schooling and entry into first full-time job. Subsequently, Neugarten observed that lives are now becoming more fluid (Neugarten & Neugarten, 1986). Gee (1990), in more recent research with a group of Canadian women, showed there is more latitude in the preferred timing of schooling. Researchers have also found life event order or sequence to be important (Elder, 1974; Hogan, 1978, 1981; Modell, 1980; Pallas, 1994), primarily because variations in order may have long-term effects on socioeconomic status. They have found that both the level and the timing of educational attainment mediate occupational attainment and other life outcomes. Despite this, very little educational attainment or student

persistence literature has focused on persons with nontraditional educational paths.

The **life course perspective** also informs this study's focus on the influence of work and family. For example, Hanson (1983) demonstrated the importance of including family life-cycle variables in understanding socioeconomic attainment for working women. Traditional status attainment and human capital approaches fail to take such variables into consideration, yet Hanson's research found that indicators of family composition and timing of family events were important predictors of later attainment.

The life course perspective which underscores the need for longitudinal research to understand adult educational attainment rarely has been incorporated into college student persistence research. For example, Tinto (1987) noted that many persistence studies look at continuation over a very short period of time, such as from one semester to another. Moreover, most persistence literature has dealt with traditional-aged students, who are only beginning to become preoccupied with adulthood activities. In the present study we utilized life course literature as the basis for including events and roles outside of education such as employment and family responsibilities that are important adult occurrences.

Status attainment and **college student persistence** literatures provided points of departure for developing an empirical model to test adult students' degree attainment. Blau and Duncan first elaborated the status attainment model in 1967, but most of the original status attainment work was done at the University of Wisconsin, using longitudinal data researchers there collected from Wisconsin residents in the 1950s and 1960s. Sewell and Hauser's (1975) related research sought to answer questions concerning the relative importance of background, ability, and experiences in explaining educational attainment, occupational attainment, and earnings. Using a model that included socioeconomic background, mental ability, academic performance in high school, and social psychological variables (aspirations and encouragement from others), the researchers explained more than half of the variation in

educational attainment. In general, status attainment research has demonstrated both the salience of education on subsequent occupational attainment and that family background continues to affect educational and occupational outcomes.

At the postsecondary level, the status attainment approach has both implicitly and explicitly shaped the research on student persistence since the 1960s. Also instrumental to this research are the concepts of student integration (Tinto, 1975) and student involvement (Astin, 1975), as well as theories regarding organizational turnover (Bean, 1980) and attitude-behavior interaction (Bean, 1982). The most widely used to explain student departure (i.e., the converse of student persistence) is Tinto's (1975, 1987) longitudinal, interactive approach. His causal model is premised on the idea that students with higher academic and social integration are less likely to drop out of college than those with lower integration. The model links pre-college factors, goals and commitments, academic and social integration (e.g. formal and informal interactions with faculty, participation in campus activities), intentions, and external commitments, to persistence. Tinto's work corroborates Astin's (1975, 1977) research, particularly regarding the importance of campus involvement to later college outcomes, including completion.

Tinto's basic model has been operationally defined and tested with community college and four year college students (Chapman & Pascarella, 1983; Pascarella, Duby, & Iverson, 1983; Pascarella, Duby, Miller, & Rasher, 1981; Pascarella, Smart, & Ethington, 1986; Pascarella, Smart, & Stoecker, 1989; Pascarella & Terenzini, 1980, 1983; Stoecker, Pascarella, & Wolfle, 1988; Terenzini & Pascarella, 1977, 1978.). Taken together, the studies have demonstrated the crucial influence of academic integration, as measured by college grades as well as informal and formal interactions with faculty, and to a lesser extent, social integration, which focuses on extracurricular involvements and peer interactions. Because Tinto's model was designed for and has been tested primarily with traditional students, these researchers did

not include influences that might have had greater relevance for adult students, such as commitments beyond the student role. Much of the research also took a short-term perspective, such as semester to semester, which is less helpful if one is interested in longer range outcomes, including degree completion.

During the mid 1980s researchers began to place greater emphasis on environmental or external variables such as finances, support of others, and hours of work to explain persistence. For example, Bean and Metzner's (1985) model of nontraditional student attrition influenced Tinto to add an external commitments component to his 1986 model of student attrition. Subsequently, when Metzner and Bean (1987) tested their model with a sample of nontraditional students, they found that family responsibilities and hours of work did not significantly influence dropout behavior; however, encouragement from others had an indirect effect on attrition. In another study, Bean and Vesper (1992) found evidence that traditional-age students were more likely to remain in college when they had family and mentor approval and encouragement.

Nora, Castaneda, and Cabrera (1992) recently tested a comprehensive model of retention that combined elements of Tinto's and Bean's theories and their own studies. They found that hours worked (an indicator of financial need as well as external demands) had a negative effect on persistence. Family responsibilities and support from others had insignificant total effects, although each had a negative direct effect. Because the study was conducted using a traditional-age student population, its applicability to adult students is untested.

Although there are far fewer studies of adult student persistence than there are of traditional aged students, research has shown that persistence influences on adults differ in some ways from that of younger students (Brown & Robinson, 1988; Grosset, 1991; Joseph, 1980; Metzner & Bean, 1987; Staman, 1979; Starks, 1987). External influences appear to play a more important role for adult students. For example, Staman (1979) compared factors influencing persistence for students in two age groups (17-21 and 22-45) in an urban,

commuting institution. Although he found that individual-institutional fit (Tinto's model) was generally supported, there were also differences between groups. Job-related factors had a significant impact on the nontraditional students. Metzner and Bean (1987), in their study of nontraditional students, found that external factors affected persistence indirectly through a student's intent to leave. Brown and Robinson (1988) found role conflict to be a major cause of dropout among a sample of male adult students. Swift (1987), in an overview of studies on adult student retention, compared research findings regarding the effects of family and job responsibilities. He cited research that suggested that parental influence and support may be important even for adult students, and that family/spouse support encouraged persistence. Regarding employment, Swift found from aggregated evidence across studies that employment could be a cause for withdrawal, although employers could also be a source of financial and moral support. Overall, the few studies of adult student persistence support the importance of the general concept of academic integration (Brenden, 1985; Metzner & Bean, 1987; Staman, 1979). The concept of social integration, as traditionally defined, appears to have a much less significant influence on adult students (Grossett, 1991; Metzner & Bean, 1987).

Most of the aforementioned studies focus on students in four-year institutions, with some exceptions. For example, Chapman and Pascarella's 1983 study compared the persistence process for students in two- and four-year institutions. The researchers found distinct differences, such as the lack of importance of social integration and institutional commitment in two-year settings. In another study of community college persistence, Voorhees (1987) also found that influences on persistence differed from those found to be important with students in four-year institutions. One possible explanation is that studies of community college student persistence tend to overlook student goals, despite the fact that community college students are more likely than four-year students to enroll for purposes other than to pursue a degree, such as for personal development or learning a specific skill

(Adelman, 1992; Voorhees, 1987). Thus, studies that single out degree-seeking students rather than all enrolled community college students are needed to generate reliable information about student degree completion.

The complexity of adult student lives and the failure of much of the persistence research to consider the influence of work and family roles on persistence prompted the need to design a study to examine the effects of those roles on degree completion. In addition, the fact that students pursue both associate and baccalaureate degrees prompted the need to examine differences among students pursuing one degree or the other as well as changes over time to degree completion rather than simply to track progress from semester to semester. Specifically, we wanted to know:

Do the multiple roles of family and employment affect the probability of associate or baccalaureate degree completion among students in early adulthood?

Data and Methods

Sample. In order to examine degree completion in early adulthood we used data from the National Longitudinal Study of the High School Class of 1972 (NLS-72) and the fifth follow-up, the 1986 study. The base year survey sampled high school seniors in all public and private schools in the United States in the 1971-72 academic year, excluding schools for the physically or mentally handicapped and the legally confined. The survey included extensive information about individual characteristics, attitudes and experiences including ability, socioeconomic status, home background, community environment, significant others, school and work experiences, aspirations, plans, and opinions. Follow-up studies were conducted in 1973, 1974, 1976, 1979, and 1986 (Riccobono, Henderson, Burkheimer, Place, & Levinsohn, 1981; Tourangeau, Sebring, Campbell, Glusberg, Spencer, & Singleton, 1987) with response rates ranging from 85 to 95 percent for each follow-up study.

Sample members in the fifth follow-up, 1986, study averaged 32 years of age and had been out of high school 14 years. This follow-up solicited detailed educational, work, and family histories used heavily in the present

study. Due to budgetary constraints, the 1986 study included only a subset of the original sample; a total of 14,489 participants were surveyed, and 12,841 responded.

Two different NLS-72 samples were used for this study: associate degree seekers and baccalaureate degree seekers. **Associate degree seekers** were operationally defined as those persons who had not earned a two-year academic or vocational degree or higher as of 1979 and had pursued a two-year academic or vocational degree between 1979 and 1986 (the period covered by the fifth follow-up study). **Baccalaureate degree seekers** were those persons who had not earned a baccalaureate degree or higher as of 1979 and had pursued a bachelor's degree between 1979 and 1986. Only whites, blacks, and Hispanics were included because of the extremely small number of other ethnic minority groups such as Asian Americans and Native Americans. The final unweighted samples consist of 526 associate degree seekers (221 males, 295 females) and 721 baccalaureate degree seekers (369 males, 352 females).

We utilize a dependent variable of progress toward degree completion rather than retention in a single institution. This measure was chosen to represent movement toward a particular goal or credential which is likely to be valued by the student as well as by many employers (Murphy & Welch, 1989; Witmer, 1983). Also, because adult students are more prone to stop out or transfer than their younger counterparts, it was important to allow for noncontinuous enrollment and for attendance in multiple institutions. Moreover, progress toward degree completion has salience for institutional accountability and policy makers. The dependent variable of progress toward degree completion by 1986 has three possible outcomes: degree completers, active degree seekers, and inactive noncompleters. Study participants were categorized into one of the following outcome groups on the basis of information they provided regarding their educational attainment as of 1986:

(1) **Degree completers.** Individuals who had completed all the requirements for an associate or baccalaureate degree by the 1986 study.

(2) **Active degree seekers.** Students who had not yet completed all the requirements for the degree they were seeking and who had been enrolled in college since January, 1985 (at least one year prior to the 1986 follow-up survey).

(3) **Inactive noncompleters.** Individuals who had not completed degree requirements and had not been enrolled since January, 1985 (at least one year).

Model. In this study, we conceptualized progress toward degree completion to be a function of several background characteristics: race/ethnicity, parental socioeconomic status, high school program, college attendance prior to October 1973, and degree plans in 1979. Because the study focuses on adult students between the ages of 25 and 32, who are experiencing a phase in life characterized by career and family establishment (Levinson, 1978), it was also important to include information on work and family roles. Therefore, six proximate or intervening variables are included: relationship pattern, childbirth, age of youngest child, employment pattern, number of jobs, and enrollment pattern. Table 1 displays the full model tested. Variable specifications are shown in Appendix A.

[INSERT TABLE 1 ABOUT HERE]

Background variables. The model tested includes five background characteristics: race/ethnicity, parental socioeconomic status, high school background, college attendance after high school, and degree plans. **Race/ethnicity** effects have been inconsistent across persistence studies, but evidence indicates that a student's racial/ethnic status may influence educational outcomes (Joseph, 1980; Metzner & Bean, 1987; Munro, 1981; Pascarella, Duby, Miller, & Rasher, 1981; Vellez, 1985). In this study of white, black, and Hispanic adults, race was measured as a dummy variable (with white as the reference category).

Parental socioeconomic status has been shown to be positively related to educational persistence (Anderson, 1981, 1988; Pascarella et al., 1986; Robertshaw & Wolfle, 1983; Vellez, 1985). Of interest to this study is

whether one's family of origin has continuing effects on degree completion into early adulthood. Parental socioeconomic status was measured as a weighted index of father's education, mother's education, father's occupation, family income, and household goods in 1972 during the survey parents' senior year in high school. This composite variable was then assigned to one of three categories: lower, middle two, or upper quartile range (Riccobono et al., 1981). Low socioeconomic status served as the reference category.

High school background has been shown to be an important determinant of later educational success (Astin, 1975; Bean, 1980; Dey, 1990; Metzner & Bean, 1987; Nora, 1987). Students who completed academic programs are likely to experience the most success in college. In the NLS-72 data set, high school program type has more complete information than high school grades. Therefore, high school program type--academic, vocational, or general curriculum--was used to indicate high school background. General program serves as the reference category.

College attendance prior to October, 1973 was included in the study. This decision was influenced by research findings that suggest an individual's chances of completing an associate or baccalaureate degree are affected by the time and type of institution in which a person begins college (Anderson, 1981; Kempner & Kinnick, 1990; Robertshaw & Wolfle, 1983; Temple & Polk, 1986, Vellez, 1985). Individuals were categorized in one of three groups: no enrollment in college prior to October, 1973 (over one year beyond high school graduation), enrollment in a two-year institution, or enrollment in a four-year institution. No enrollment in college prior to October, 1975 was the reference group.

Degree plans as of 1979 were included as a result of compelling evidence of the existence of a positive relationship between educational aspirations and persistence (Anderson, 1988; Astin, 1975; Bean, 1980; Brown & Robinson, 1988; Nora, 1990). A complete and useful measure of educational goals came from the fourth survey conducted in 1979, immediately before the 1979-1986 period considered in this study. Participants were asked, "As things stand

now, how far in college do you think you actually will get?" We considered such a question a good indicator of anticipated or expected educational attainment. Associate degree seekers' response categories were: less than two years of college (reference group), two years or more but no baccalaureate, and baccalaureate degree or higher. Baccalaureate degree seekers' categories were: less than baccalaureate degree (reference group), baccalaureate degree, or graduate/professional degree.

Intervening variables. Relationship, parenting, employment, and enrollment patterns were expected to mediate the effects of these background variables on degree progress as of 1986. The life course perspective suggests that life roles and responsibilities may coincide with the role of student. Therefore, a "period of enrollment" was first defined for each study participant. The period of enrollment was bounded by the earliest and latest dates between 1979 and 1986 in which an individual was pursuing a baccalaureate degree (for the baccalaureate analysis) or an associate degree (for the associate analysis). For example, one student's enrollment period might have been from January to June, 1980, while another's might have extended from August, 1979 to December, 1985. The period of enrollment measure was believed to be a workable indicator of the overall time period committed to college between 1979 and 1986, although enrollment was not necessarily continuous. Once each student's period of enrollment was identified, all intervening variables were created in relationship to the enrollment period.

Three indicators of family responsibilities--relationship patterns, childbirth experienced, and age of youngest child at beginning of a student's enrollment--were included because adult students have identified these responsibilities as primary influences leading to dropping out of college (Joseph, 1980; Swift, 1987). **Relationship patterns** were traced for each student's enrollment period. For this study, persons in marriage-like relationships were considered married. Persons were categorized as nonmarried throughout the period (never-married, widowed, or divorced),

married throughout, or status changers during the period. Nonmarried students served as the reference category. The role demands that can accompany a marriage or marriage-like relationship suggest that these students may be less likely to complete degrees than individuals who are in such a relationship.

Two indicators of parenting were used. The first deals with changes in parenting status as evidenced by **experiencing childbirth** as a mother or father during the period of enrollment. Participants were classified into one of two categories: no childbirth experienced during period of enrollment (reference group) or childbirth experienced. The second indicator of parenting was **age of youngest child** at the beginning of a student's period of enrollment. This dummy variable had three categories: no child at start of period (reference category), preschool child, and school-age child age six or older. Because childbirth can disrupt peoples' lives, and young children can create demands on adults, we anticipated that parenting responsibilities would have a detrimental effect on degree completion.

Adult students also frequently cite employment responsibilities as reasons for dropping out of school (Brown & Robinson, 1988; Joseph, 1980; Swift, 1987). Even among traditionally aged students, employment may adversely affect persistence (Anderson, 1981; Astin, 1975; Nora et al., 1992). Because many adults in their twenties are establishing careers, job responsibilities may well interfere with degree completion plans; thus, two indicators were included in the study. Employment information was treated in a manner similar to the treatment of marital and parenting data, using each student's period of enrollment. The first indicator, **employment pattern**, considered paid work only and included three categories: employed full-time throughout the period (reference category), not employed throughout period, or another work pattern. The **number of jobs** a person held during the period of enrollment may also influence degree completion. Up to four jobs could be reported for the 1979-1986 period. Students were categorized as follows: fewer than two jobs (reference category) and two or more jobs.

Enrollment pattern was also included, since these patterns may affect degree progress. Enrollment patterns were coded as continuous or intermittent during each student's period of enrollment, with intermittent attendance as the reference category. Continuously enrolled students were expected to be most successful in completing degrees.

Data analysis. This study's focus on adult students makes an examination of gender effects critical. The age and time period of approximately 25 through 32 years old that the study encompasses is an important childbearing period for women. Because only women give birth and the fact that the responsibilities involved in parenting young children tend to fall more heavily on women (Hochschild, 1989; Huber & Spitz, 1983), the added responsibility may make women less likely than men to complete degrees. Separate analyses were run for men and women because of the differences in the persistence process demonstrated by previous research (Anderson, 1988; Bean, 1980; Mulligan & Hennessy, 1990; Pascarella et al., 1986; Stage, 1989). In addition, analyses of pooled data showed several significant interactions between gender and other independent variables[1]; this further justified separate analyses. Models were estimated for male and female associate degree students as well as for male and female baccalaureate degree students.

Conditional logistic regression was chosen as an appropriate statistical technique because the dependent variable and independent variables are categorical. The logit model's assumptions are less strict than those of traditional multiple regression or discriminant analysis; it offers various tests of significance that are unavailable in cross-tabulation analysis (Demaris, 1992). Using a trichotomous dependent variable, we model how the proportion of responses in each of the three outcome categories--degree completers, active degree seekers, and inactive noncompleters--depends on the

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[1] Analysis of pooled data for associate degree students showed interactions by gender were significant at the .05 level for family socioeconomic status, race, and high school program. For baccalaureate degree seekers, interaction terms were significant at the .05 level for gender and age of youngest child, family socioeconomic status, race, and employment pattern.

independent variables. The logit model is based on the probability of each dependent variable outcome occurring. Thus with three possible degree progress outcomes denoted as PO = 1,2, or 3 with respective probabilities of P1, P2, and P3, the conditional logits (L) are:

$$L1 = \ln(P2/P1)$$

$$L2 = \ln(P3/P1)$$

These definitions imply the third conditional logit as:

$$L3 = \ln(P3/P2) = \ln[(P3/P1)(P1/P2)]$$

$$= \ln(P3/P1) - \ln(P2/P1)$$

$$= L2 - L1$$

(Hanuschek & Jackson, 1977)

In this analysis, P1 represents the probability of degree completion, P2 the probability of being an active degree seeker, and P2 the probability of being an inactive noncompleter. The logistic regression model (for the P2/P1 comparison) can be written as:

$$\ln(P2/P1) = \text{alpha} + \text{beta } X$$

where alpha is an estimated constant, and beta is the coefficient of the predictor variable.

In logistic regression, one category for each explanatory variable is omitted to serve as the reference. The coefficients for the remaining categories represent differences in the logit of, for example, completing a degree and being an inactive noncompleter between those particular categories and the omitted category. Thus, results are always viewed in relative rather than absolute terms.

Multinomial logistic regression equations were estimated using the procedure CATMOD in SAS, with maximum likelihood methods. The model's fit is judged by calculating a chi-square statistic on the basis of expected and actual cell frequencies. In addition, SAS produces chi-square tests of the significance level of each independent variable overall and the individual parameter estimates. Weights were used in order to more accurately represent the national population.

Results

Table 2 shows degree completion outcomes for the four groups. Male and female associate degree students and female baccalaureate students have similar degree progress outcomes. Their degree completion rates range from 34 to 37 percent. Male baccalaureate students have a similar rate of noncompletion as the other groups (around 30 percent), but their 44 percent degree completion rate is much higher.

[INSERT TABLE 2 ABOUT HERE]

In this paper we report results from only the full models in an attempt to streamline complex results.[2] We initially planned to drop any insignificant variables; however, no variable was insignificant for all four groups. Therefore, for comparability purposes across groups, the final model selected includes all the background and intervening variables originally proposed.

Table 3 reports the multinomial logistic regression coefficients for associate degree males and females modeled separately, and Table 4 shows results of the same analyses for baccalaureate degree males and females.

[Table 3 about here]

[Table 4 about here]

The overall model fit is significant for all four groups. All chi-square statistics are significant at the .001 level. The model best fit the female baccalaureate student data (X^2=348.02, df=38). The least effective fit is for male baccalaureate students (X^2=186.5, df=38).[3]

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[2] We tested both partial (background variables only) and full (background and intervening variables) models. For all four groups--associate degree males and females and baccalaureate degree males and females--the intervening variables added significantly to the model's fit.

[3] Within each model, three comparisons are made for every independent variable: degree completers are compared to inactive noncompleters (C/I), active degree seekers to inactive noncompleters (A/I), and active degree seekers to degree completers (A/C). These comparisons are made for each category of an independent variable, relative to the reference category of that variable. A positive coefficient indicates that, compared to the reference group, persons from the comparison category are more likely to have achieved the first outcome than the second. A negative coefficient indicates they are less likely. For example, looking at race/ethnicity for associate

It is evident from these tables that degree progress outcomes have somewhat different explanations for each group and few variables were significant for all four groups. Next we present our findings associated with various independent variables.

Race/ethnicity. Race/ethnicity affects degree progress for all groups except baccalaureate females. The effect of being Hispanic compared to white is significant only for associate degree males; Table 3 indicates that Hispanic men are less likely than whites to be active degree seekers than degree completers (-2.31). Being a black male associate degree student rather than white is a definite disadvantage. As Table 3 shows, black males are significantly more likely to be inactive noncompleters than either degree completers (-2.03) or active students (-3.12). Black associate degree females are somewhat more likely than white women to complete associate degrees than to be active degree seekers or inactive noncompleters. However, compared with whites, they are also less likely to be active degree seekers than inactive noncompleters.

As Table 4 shows, black males, when compared with white baccalaureate degree males, are more likely to be inactive noncompleters (-1.41) or active degree seekers (1.64) than to complete degrees. Overall, race or ethnicity impacts minimally on degree progress for baccalaureate degree students relative to relative to associate degree students.

Parental socioeconomic status (SES). Parental SES has significant effects for both associate degree males and baccalaureate females, and these effects run counter to expectations. Associate degree males from medium or high SES families are significantly less likely than those from low SES backgrounds to be active students than to be inactive. Among baccalaureate degree females, those from medium or high SES backgrounds are significantly more likely to be active students than to complete degrees, relative to

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degree males in Table 3, one sees that, relative to white students, black students are significantly less likely to have completed degrees (-2.03^{**}) or to be active students (-3.12^{***}) than to be inactive noncompleters. Thus results are always expressed in relative terms, with comparisons of one possible outcome to another.

students from low SES backgrounds.

High school program. A student's high school program is significant only for associate degree students (Table 3). Males with academic rather than general program backgrounds are significantly more likely to be degree completers than active degree seekers. Associate degree females show some surprising, but weak, effects. Women with academic curricular backgrounds rather than general are less likely to have completed a degree or be considered active students than to be inactive noncompleters. Vocational program attendance, compared with general program attendance, is also associated with a greater likelihood of degree completion versus inactivity or being an active student.

College attended prior to October, 1973. The influence of college attendance in the year following high school is relatively minor for all groups of students when other factors are considered. As Table 3 shows, male associate degree students who attended a two-year college upon graduating from high school rather than not attending college are significantly more likely to be degree seekers than to be either inactive noncompleters or degree completers. Associate degree women with two-year college backgrounds are slightly more likely than women who did not enroll by 1973 to complete degrees than to be inactive noncompleters. We speculated that attending a four-year institution the year after high school would positively affect progress toward a baccalaureate degree in early adulthood, but this hunch was only partly supported. In this regard, Table 4 shows that women are significantly more likely to be degree completers than inactive noncompleters if they attended a four-year college initially rather than not attending college.

Degree plans in 1979. The effects of students' degree plans in 1979 are generally consistent and strong, as might be expected. For all four groups, students with the highest degree plans are significantly more likely to complete degrees than to be inactive noncompleters or active degree seekers, compared with students with the lowest plans.

Marriage or relationship pattern. Relationship pattern has a

significant effect on degree progress only for associate degree males (Table 3) and baccalaureate degree females (Table 4). Compared to associate degree men who were nonmarried, those who changed status are more likely to complete degrees than to be inactive noncompleters or active degree seekers. Baccalaureate degree women who were married throughout were slightly more likely than nonmarried women to be active degree seekers rather than degree completers. We speculated that students', especially women's, relationship patterns would affect degree progress, but the data only minimally supported our expectations.

Childbirth during period of enrollment. Childbirth has a significant positive effect only for baccalaureate degree females; paradoxically, that finding is counter to expectations. Baccalaureate degree women who had a child sometime during their higher education enrollment period are actually more likely than those who did not give birth to complete degrees rather than to become inactive noncompleters. Although childbirth was expected to delay or interrupt degree progress, that was not the case for any group, and in the case of baccalaureate degree females, childbirth plays a favorable role.

Age of youngest child. The age of the youngest child at the start of the period of enrollment has a significant effect on all four groups. As Tables 3 and 4 show, school-age children have the most consistent effects on degree progress. For all four groups, students with school-age children are significantly more likely to be active degree seekers than to be either inactive noncompleters or degree completers in comparison to individuals without children. Thus it appears that older children may slow down students but not arrest their progress.

Preschool-age children have no significant effect on the degree progress of baccalaureate degree males and associate degree females. As Table 3 shows, men with preschool children are less likely to have completed degrees than to be inactive noncompleters when compared with associate degree men without children. Table 4 indicates that baccalaureate women with preschool children are more likely than women without children to be active students as opposed

to having completed degrees. In short, giving birth or having a partner who gives birth as well as raising a young child does not appear to disadvantage women more than men, nor are the consequences different between baccalaureate and associate degree students.

Employment pattern. A student's employment pattern has significant effects for three of the four groups. Associate degree males are the only group not affected. Full-time employment is detrimental to degree completion for baccalaureate degree men and women (Table 4) as well as associate degree women (Table 3), in comparison to not working at all or having had some other employment pattern. For these groups, individuals who worked full time are more likely to be active students than to have completed degrees. Baccalaureate degree men who were employed full time are also significantly less likely than those without jobs or with other work patterns to have completed degrees rather than being inactive noncompleters. Interestingly, both associate and baccalaureate women are less likely to be active students than inactive if they did not work at all, relative to those who worked full-time.

Number of jobs. The number of jobs a student held is significant for two groups--associate degree males (Table 3) and baccalaureate females (Table 4). For both groups, compared to individuals who held fewer than two jobs, men and women with two or more jobs are more likely to be active than inactive students. Furthermore, baccalaureate females who held two or more jobs also are significantly more likely than baccalaureate women with fewer jobs to have completed degrees in contrast to being inactive.

Overall, employment responsibilities are associated with degree progress in important ways, including the generally negative impact of full-time employment. However, results are not always consistent with expectations derived from antecedent research. Further, effects of employment patterns and number of jobs are not greater for men than women, again contrary to expectation. As anticipated, the employment effects on baccalaureate students are somewhat stronger than on associate degree students.

Enrollment pattern. Enrollment pattern during one's period of schooling significantly affected degree progress for all four groups. Associate degree males and females (Table 3) and baccalaureate degree females (Table 4) who attended college continuously are more likely to complete degrees than to be either active or inactive students. For baccalaureate degree males, continuous enrollment only distinguishes completers from active students.

Discussion

Our study tested an empirical model consisting of five background variables (race/ethnicity, parental SES, high school program, college attendance after high school, and 1979 degree plans) and six intervening variables (relationship pattern, childbirth, age of youngest child, employment pattern, number of jobs, and enrollment pattern) to determine the impact of family and employment roles on degree completion. Such external responsibilities definitely affect degree completion, but the results vary by student group. Relationship patterns have the most limited effects. Possibly a marriage or marriage-like relationship provides support and financial stability that balance role demands. Encouragement from others has been shown to be an important predictor of nontraditional student persistence (Metzner & Bean, 1987). Although we expected students who changed relationship status or experienced childbirth to be at a disadvantage, they were not. This suggests that although a major life change such as a divorce may be disruptive but its influence evens out over time. Another explanation may be that such changes actually serve as catalysts that encourage students to continue pursuing and completing degrees.

The age of a student's youngest child has a more predictable effect. For all groups, having school-age children at the start of one's period of enrollment slows degree completion but does not stop it. Preschool children have a similar effect, but only for associate degree males and baccalaureate females. We expected women to be more disadvantaged than men by having children, but this did not occur, nor were baccalaureate degree students more affected than associate degree ones.

Our findings suggest that family responsibilities impact in ways that are not clearcut. This was surprising as a result of the fact that adult students frequently cite these responsibilities as a reason for leaving college (Joseph, 1980; Swift, 1987; Tittle & Denker, 1980). However, the quantitative nature of the data may mask attitudinal and behavioral differences that occur among families with children. The encouraging finding is that being an adult student and a parent can be compatible roles, although role strain or conflict may slow progress.

The effect of employment patterns closely follows predictions and previous research. In our study, associate degree males are not affected by their patterns of employment, possibly because so few did not work while in school. Working full time was particularly detrimental to degree progress for baccalaureate males and associate females. The number of jobs held by adult students affects degree progress in limited and surprising ways. Holding two or more jobs rather than fewer is more beneficial than expected. It is necessary to look at job changes more closely to determine why they may have had the effect they did. However, one interpretation may be that job change or advancement for high school graduates encourages further educational achievement.

One advantage of taking a longitudinal perspective is being able to discern how activities beyond the student role affect degree progress over time. It is clear that relationship patterns have little effect on degree outcomes. On the other hand, employment patterns have a more substantial influence. The responsibilities that accompany parenthood have inconsistent effects. Life circumstances that we expected to impact may actually interfere less with persistence than with the initial decision to return to college. Once adults have made a commitment to return, many are motivated to juggle multiple roles. For adult students, the concept of "social integration" may have more to do with how one integrates school into an overall life context than how involved the student is with college extracurricular activities (Spanard, 1990). Having family and employment responsibilities may make such

integration more difficult but not impossible.

Men's and women's degree plans in 1979 (seven years beyond high school graduation) was the single variable that significantly affected degree completion for all four groups of participants. Degree plans strongly distinguished degree completers from both active and inactive students. These findings are consistent with previous persistence research which has consistently shown the importance of commitment or aspirations (Anderson, 1988; Astin, 1975; Bean, 1980; Munro, 1981; Nora, 1987, 1990; Vellez, 1985).

Race has differential consequences. First, although being Hispanic rather than white tends to make little difference, this is likely to be a consequence of the small number of Hispanic participants rather than an accurate indicator of race and ethnicity considerations. Race does not significantly affect baccalaureate degree females. In the other three groups, however, black males are disadvantaged in comparison with whites, whereas black females are at an advantage. Again, due to the small number of black students, caution must be taken not to overstate the findings.

When parental SES significantly influences degree completion, its effects differ somewhat from antecedent research. Individuals from medium and high SES appear to be at a disadvantage in completing degrees relative to students from low SES backgrounds. One possible explanation for the contradictory effects may be due to the adult student sample. While persistence studies of traditional-aged student samples have shown the advantage of high SES on persistence (Anderson, 1981, 1988; Robertshaw & Wolfle, 1983; Vellez, 1985), perhaps the same underlying characteristics or reasons that prevented some high SES students from completing college when they were younger work against them later.

The consequence of one's high school program appears to dissipate completely for adult baccalaureate degree students. The impact is more pronounced for associate degree students, but not always in the direction expected. In general, the overall lack of influence shows that early choices do not always determine later success. A student's college experience

immediately after high school may also play a more limited role than several other studies that found interruptions in postsecondary education had negative effects on the changes of completing degrees (Kempner & Kinnick, 1990; Robertshaw & Wolfle, 1983; Temple & Polk, 1986). These differences may be a function of our sample, which included only those adults who were enrolled in college.

Our findings indicate that those adult students who attend college on a continuous basis will be more likely than intermittent attenders to complete their degrees more quickly. Only for baccalaureate males does continuous attendance not distinguish between being a degree completer and an inactive noncompleter.

Definite differences were seen between student groups, as expected. These differences corroborate studies that have found group differences in the persistence and degree completion process (Metzner & Bean, 1987; Nora, 1989; Pascarella, Smart, & Stoecker, 1989). Baccalaureate degree students (especially males) are generally less influenced by background characteristics than are associate degree students. We originally expected to find that gender differences would hold across degree samples, but actual similarities are few. The only variable that operates similarly for both samples of men is 1979 degree plans. For women, the two similarities are in the effects of 1979 degree plans and enrollment patterns. These results point to the danger of over-generalizing and the need to look at distinct student groups separately.

Several recommendations regarding institutional policy and practices emerged. Because the importance of one's high school curriculum diminishes as time passes, colleges and universities are well advised to deemphasize high school background and instead consider more recent factors (e.g., documentation of work quality from paid employment or volunteer activities) in making admissions decisions about adult applicants. Findings also suggests that high school students who aspire to a bachelor's degree should be encouraged to begin their higher education immediately after high school and should attend a four-year college or university. Inasmuch as motivation plays

a critical role in degree progress, an assessment or discussion of a student's degree plans upon entry to an institution might provide a valuable indicator of student commitment that could be used to identify at-risk students. Continuity in student role appears important, but the "stopout" phenomenon is very real among adult students. Thus, institutions should aim to maintain contact with intermittent attenders to encourage their continuation in school.

Given the detrimental impact that full-time employment may have, adult students should be encouraged to minimize work involvements to the extent possible. This recommendation is difficult to implement, however. Responding to adult students' work commitments through convenient course scheduling and flexibility in assignments may be helpful. Institutions may also form partnerships with employers to find ways to improve the interaction between employment and schooling in students' lives. Employers have a role to assume regarding benefits and encouragement they provide to employees in school, and employed adult students themselves also have a responsibility to recognize the difficulty of balancing work and school commitments and to view themselves as active partners in achieving a balance.

Although an examination of the impact of institutional environment was outside the scope of this study, the weight of evidence from previous research indicates that individual colleges and universities very likely play an instrumental part in adult student persistence. They can present institutional barriers or equip themselves to serve adult learners by increasing flexibility and convenience, offering support services geared for adult students, and in general understanding the nature of the "new majority." Faculty members probably play a particularly crucial role in adult student persistence, since so many adults do not have the time or inclination to be involved beyond classes. Faculty members thus become students' primary point of contact with the institution.

Several caveats to our findings should be noted. Because the study used existing data, it was constrained by data availability and quality. In particular, measures of academic integration and finances applicable to the

entire sample were not available. Also, any errors in recall of dates affected the reliability of measures constructed from date information. Moreover, because the sample was selected on the basis of students' stated degree goals, its validity is subject to the accuracy and honesty with which students reported these goals. Likewise, the dependent variable measure relies on students accurately reporting degree outcomes.[4] Finally, the cohort studied and age range of the sample are important. Results may not be generalizable to more recent cohorts and to older populations of students.

Lastly, future research on adult student persistence should incorporate influences not considered in this study, particularly academic integration and financial factors, along with qualitative approaches. Also, alternative conceptualizations of parenting and employment roles and responsibilities should be developed and examined in future studies to provide richer information about some of the major effects found through this study. Ultimately, the research should better assist colleges and universities to shape environments that invite, respond to, and value adult students.

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[4] Theoretically, validation of our information was available through the 1984 Postsecondary Education Transcript Study, but this transcript collection was based on just those institutions attended as of the 1979 NLS-79 follow-up study. Any new institution attended after 1979 is not included.

Table 1. **Model of Degree Progress**

Background (control) variables	*Intervening variables*	*Dependent variable*
Race	Relationships	
Parental SES	Childbirth	Degree progress
High school program	Age of youngest child	(1986)
College attendance (prior to 1973)	Employment pattern	
1979 degree plans	Number of jobs	
	Enrollment pattern	

Table 2. **Percentage Distribution of Degree Outcomes.**

Samples	Complete	Active	Incomplete	Total unweighted N
Associate males	37	33	30	221
Associate females	35	36	29	295
Baccalaureate males	44	26	30	369
Baccalaureate females	34	39	27	352

Note: Percentage distributions are weighted.

Table 3. Multinominal Logistic Coefficients Showing Effects of Background and Intervening Variables on Degree Progress Among Adult Associate Degree Students, by Gender.

Predictor Variables	Males			Females		
	C/I	A/I	A/C	C/I	A/I	A/C
RACE/ETHNICITY						
(White)						
Hispanic	0.63	-1.68	-2.31**	-0.65	+1.14	-0.49
Black	+2.03**	-3.12***	-1.09	0.90*	-1.81***	-2.73***
PARENTAL SES						
(Low)						
Medium	-1.33*	-2.11***	+0.78	0.25	0.28	0.03
High	-1.01	-2.19**	-1.18*	0.48	-0.02	-0.50
HIGH SCHOOL PROGRAM						
(General)						
Academic	0.67	-0.61	+1.27**	-0.90*	+1.08**	-0.17
Vocational	0.55	-0.59	+1.14*	-0.86*	+0.06	0.80*
COLLEGE PRIOR TO 10/73						
(None)						
Two-year	0.46	1.81***	1.15**	0.97*	0.12	-0.85
Four-year	0.63	0.93	0.30	-0.09	0.68	0.77
DEGREE PLANS, 1979						
(Less than two years)						
Two years or more, no baccalaureate	1.62**	-1.09**	+2.71***	0.15	-0.62	-0.78
Baccalaureate or more	2.46***	-0.82	-3.29***	1.31***	0.14	-1.17**
RELATIONSHIP PATTERN						
(Single throughout)						
Married throughout	0.40	0.15	-0.25	-0.13	0.01	0.14
Changed status	1.59*	0.18	-1.77**	0.49	+0.01	-0.50
CHILDBIRTH						
(None)						
Had child	0.03	0.37	0.34	-0.42	-0.21	0.21
AGE OF YOUNGEST CHILD						
(No child)						
Preschool	-1.07*	0.10	1.17*	-0.09	-0.33	-0.24
School-age	-0.66	1.24*	1.90***	-0.15	0.86*	1.01**
EMPLOYMENT PATTERN						
(Full-time)						
Other pattern	0.61	-0.31	-0.92	1.59***	0.17	-1.41***
Not employed	-0.54	0.49	1.02	0.83	-1.05*	-1.88***
NUMBER OF JOBS						
(0-1)						
Two or more	1.28	0.10**	0.82	0.18	0.36	0.19
ENROLLMENT PATTERN						
(Intermittent)						
Continuous	1.48**	-0.51	+1.98***	1.75**	-0.92*	-2.67***
Constant	-2.23*	3.51**	4.75***	-2.55***	1.15	3.70***
-2 Log likelihood		323.00			423.79	
Model X^2		283.0			212.8	
Degrees of freedom		38			38	
Unweighted number of cases		194			257	

Notes: C/I = Degree completers versus inactive non-completers
A/I = Active degree seekers versus inactive non-completers
A/C = Active degree seekers versus degree completers

* $p < .10$ ** $p < .05$ *** $p < .01$

Variables are weighted in this analysis

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Table 4. Multinominal Logistic Coefficients Showing Effects of Background and Intervening Variables on Degree Progress Among Adult Baccalaureate Degree Students, by Gender.

	Males			Females		
Predictor Variables	C/I	A/I	A/C	C/I	A/I	A/C
RACE/ETHNICITY						
(White)						
Hispanic	-1.15	-1.33	-0.18	-0.12	-0.60	-0.48
Black	-1.41*	0.23	1.64**	-0.28	-0.48	-0.20
PARENTAL SES						
(Low)						
Medium	0.37	-0.06	-0.43	-0.67	0.57	1.24***
High	0.09	-0.01	-0.10	-0.74	0.43	1.17**
HIGH SCHOOL PROGRAM						
(General)						
Academic	0.37	0.12	-0.25	0.16	0.19	0.03
Vocational	-0.07	-0.27	-0.21	0.01	0.37	0.36
COLLEGE PRIOR TO 10/73						
(None)						
Two-year	0.15	-0.16	0.31	0.46	0.41	-0.06
Four-year	0.36	-0.30	-0.66	0.89**	0.18	-0.71
DEGREE PLANS, 1979						
(Less than bachelor's)						
Bachelor's degree	1.48***	-0.49	-1.97***	0.55	-0.89**	-1.44***
Beyond bachelor's	1.79***	-0.91*	-2.70***	1.16**	-1.28***	-2.43***
RELATIONSHIP PATTERN						
(Single throughout)						
Married throughout	0.25	0.13	-0.13	-0.28	0.41	0.69*
Changed Status	0.48	0.42	-0.06	0.47	0.55	0.07
CHILDBIRTH						
(None)						
Had child	-0.22	0.58	0.80	1.20*	0.66	-0.54
AGE OF YOUNGEST CHILD						
(No child)						
Preschool	-0.46	0.21	0.68	-0.18	0.61	0.79*
School-age	0.67	1.73***	1.06*	-0.59	1.77***	2.36***
EMPLOYMENT PATTERN						
(Full-time)						
Other pattern	1.82***	0.13	-1.69***	0.55	-0.53	-1.09***
Not employed)	1.26***	0.19	-1.26**	0.48	-1.64***	-2.23***
NUMBER OF JOBS						
(0-1)						
Two or more	0.54	0.61	0.07	1.24***	1.18**	-0.06
ENROLLMENT PATTERN						
(Intermittent)						
Continuous	0.56	-0.55	-1.11**	1.72***	0.04	-1.67***
Constant	-2.76***	0.37	3.13***	-2.21***	-0.64	1.58*
-2 Log likelihood		557.23			509.32	
Model X^2		182.24			346.9	
Degrees of freedom		38			38	
Unweighted number of cases		336			312	

Notes: C/I = Degree completers versus inactive non-completers.
A/I = Active degree seekers versus inactive non-completers.
A/C = Active degree seekers versus degree completers.

* $p < .10$. ** $p < .05$. *** $p < .01$.

Variables are weighted in this analysis.

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REFERENCES

Adelman, C. (1992). The way we are. The community college as American thermometer. Washington, DC: U.S. Department of Education.

Anderson, K. L. (1981). Post-high school experiences and college attrition. Sociology of Education, 54, 1-15.

Anderson, K. L. (1988). The impact of colleges and the involvement of male and female students. Sociology of Education, 61, 160-177.

Astin, A. W. (1975). Preventing students from dropping out. San Francisco: Jossey-Bass Publishers.

Astin, A. W. (1977). Four critical years. San Francisco: Jossey-Bass Publishers.

Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. Research in Higher Education, 12, 155-187.

Bean, J. P. (1982). Conceptual models of student attrition: How theory can help the institutional researcher. In E.T. Pascarella (Ed.), Studying student attrition. New Directions for Institutional Research series, No. 36 (pp. 17-34). San Francisco: Jossey-Bass Inc., Publishers.

Bean, J. P. & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. Review of Educational Research, 55, 485-540.

Bean, J. P. & Vesper, N. (1992, October). Student dependency theory: An explanation of student retention in college. Paper presented at the Association for the Study of Higher Education annual meeting, Minneapolis.

Blau, P. M. & Duncan, O. D. (1967). The American occupational structure. New York: Wiley.

Brenden, M. A. (1985). Retention of undergraduate women of nontraditional age: Patterns, strategies, and services. Journal of NAWDAC, 48 (3), 22-26.

Brown, J. V. E. & Robinson, R. D. (1988). The adult male undergraduate: Who stays and who leaves? College Student Journal, 22, 95-100.

Chapman, D. W. & Pascarella, E. T. (1983). Predictors of academic and social integration of college students. Research in Higher Education, 19, 295-321.

Demaris, A. (1992). Logit modeling. Practical applications. Newbury Park, CA: Sage Publications.

Dey, E. L. (1990, April). Evaluating college student retention: Comparative national data from the 1981-1984 entering freshman classes. Paper presented at the annual meeting of the American Educational Research Association, Boston. (In Higher Education Abstracts, 0536-26)

Elder, Jr., G. H. (1974). Age differences and the life course. In A. Inkeles, (Ed.), Annual review of sociology, 1975, vol. 1.

Elder, Jr., G. H. (1985). Perspectives on the life course. In G. H. Elder, Jr., (Ed.), Life course dynamics, (pp. 23-49). Ithaca, NY: Cornell University Press.

Gee, E. M. (1990). Preferred timing of women's life events: A Canadian study. International Journal of Aging and Human Development, 31, 279-294.

Grosset, J. M. (1991). Patterns of integration, commitment, and student characteristics among younger and older students. Research in Higher Education, 32, 159-178.

Hanson, S. L. (1983). A family life-cycle approach to the socioeconomic attainment of working women. Journal of Marriage and the Family, 45, 323-337.

Hochschild, A. (1989). The second shift. New York: Viking.

Hogan, D. P. (1978). The variable order of events in the life course. American Sociological Review, 43, 573-586.

Hogan, D. P. (1981). Transitions and social change. New York: Academic Press.

Huber, J. & Spitze, G. (1983). Sex stratification. New York: Academic Press.

Hanushek, E. A. & Jackson, J. E. (1977). Statistical methods for social scientists. New York: Academic Press.

Joseph, H. J. (1980/1981). The Influence of Selected Socio-Demographic Factors and Motivational Orientations on Enrollment Persistence of Adult Part-Time Students in University Courses. Dissertation Abstracts International, 41 (9), 3839-A-3840-A.

Kempner, K. & Kinnick, M. (1990). Catching the window of opportunity. Being on time for higher education. Journal of Higher Education, 61, 535-547.

Levinson, D. J. (1978). The seasons of a man's life. New York: Knopf.

Levitz, R. & Noel, L. (1980). Attracting and retaining adult learners: Summary report and program descriptions. Iowa City: American College Testing Program National Center for Advancement of Educational Practices.

Marini, M. M. (1984). The order of events in the transition to adulthood. Sociology of Education, 57, 63-84.

Metzner, B. S. & Bean, J. P. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. Research in Higher Education, 27, 15-38.

Modell, J. (1980). Normative aspects of American marriage timing since World War II. Journal of Family History, 5, 210-234.

Mulligan, S. C. & Hennessey, J. J. (1990, April). Persistence in a community college: Testing attrition models. Paper read at the annual meeting of the American Educational Research Association, Boston. (In Higher Education Abstracts, 0231-26).

Munro, B. H. (1981). Dropouts from higher education: Path analysis of a national sample. American Educational Research Journal, 18, 133-141.

Murphy, K. & Welch, F. (1989). Wage premiums for college graduates. Recent growth and possible explanations. Educational Research, 18 (4), 17-26.

National Center for Education Statistics. (1992). Digest of Education Statistics. (NCES Publication No. 92-097). Washington, D.C.: U.S. Government Printing Office.

Neugarten, B. L., Moore, J. W., & Lowe, J. C. (1965). Age norms, age constraints, and adult socialization. The American Journal of Sociology, 70, 710-717.

Neugarten, B. L. & Neugarten, D. A. (1986). Age in the aging society. Daedalus, 115, 31-49.

Nora, A. (1987). Determinants of retention among Chicano college students. Research in Higher Education, 26, 31-59.

Nora, A. (1990). Campus-based aid programs as determinants of retention among Hispanic community college students. Journal of Higher Education, 61, 312-331.

Nora, A., Castaneda, M. B., & Cabrera, A. F. (1992, October). Student persistence: The testing of a comprehensive structural model of retention. Paper presented at the Association for the Study of Higher Education annual meeting, Minneapolis.

Pallas, A. M. (1994). Schooling in the course of human lives: The sociaal context of education and the transition to adulthood in industrial society. Review of Educational Research, 63, 409-447.

Pascarella, E. T., Duby, P. B., & Iverson, B. K. (1983). A test and reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. Sociology of Education, 56, 88-100.

Pascarella, E. T., Duby, P. B., Miller, V. A., & Rasher, S. P. (1981). Preenrollment variables and academic performance as predictors of freshman year persistence, early withdrawal, and stopout behavior in an urban, nonresidential university. Research in Higher Education, 15, 329-349.

Pascarella, E. T., Smart, J. C., & Ethington, C. A. (1986). Long-term persistence of two-year college students. Research in Higher Education, 24, 47-71.

Pascarella, E. T., Smart, J. C., & Stoecker, J. (1989). College race and the early status attainment of black students. Journal of Higher Education, 60, 82-107.

Pascarella, E. T. & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. Journal of Higher Education, 51, 60-75.

Pascarella, E. T. & Terenzini, P. T. (1983). Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. Journal of Educational Psychology, 75, 215-226.

Riccobono, J., Henderson, L. B., Burkheimer, G. J., Place, C., & Levinsohn, J. R. (1981). National Longitudinal Study: Base Year (1972) through fourth follow-up (1979) data file users manual. National Longitudinal Study Sponsored Report Series. RTI/0884/73/18S. Research Triangle Park, NC: Research Triangle Institute.

Rindfuss, R. R., Swicegood, C. G., & Rosenfeld, R. A. (1987). Disorder in the life course: How common and does it matter? American Sociological Review, 52, 785-801.

Robertshaw, D. & Wolfle, L. M. (1983). Discontinuities in schooling and educational attainment. Higher Education, 12, 1-18.

Sewell, W. H. & Hauser, R. M. (1975). Education, occupation, and earnings: Achievement in the early career. New York: Academic Press.

Spanard, J. A. (1990). Beyond intent: Reentering college to complete the degree. Review of Educational Research, 60, 309-344.

Stage, F. K. (1989). Motivation, academic and social integration, and the early dropout. American Educational Research Journal, 26, 385-402.

Staman, E. M. (1979/1980). Predicting Student Attrition at an Urban college. Dissertation Abstracts International, 40 (8), 4440-A.

Starks, G. (1987, April). Rentention of adult women students in the community college: Research findings from exceptional case studies. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C. (ERIC Document Reproduction Number ED 281 592)

Stoecker, J., Pascarella, E. T., & Wolfle, L. M. (1988). Persistence in higher education: A 9-year test of a theoretical model. Journal of College Student Development, 29, 196-209.

Swift Jr., J. T. (1987). Retention of adult college students. NACADA Journal, 7 (2), 7-19.

Temple, M. & Polk, K. (1986). A dynamic analysis of educational attainment. Sociology of Education, 59, 79-84.

Terenzini, P. T. & Pascarella, E. T. (1977). Voluntary freshman attrition and patterns of social and academic integration in a university: A test of a conceptual model. Research in Higher Education, 6, 25-43.

Terenzini, P. T. & Pascarella, E. T. (1978). The relation of students' precollege characteristics and freshman year experience to voluntary attrition. Research in Higher Education, 9, 347-366.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. Review of Educational Research, 45, 89-125.

Tinto, V. (1987). Leaving college. Chicago: The University of Chicago Press.

Tittle, C. K. & Denker, E. R. (1980). Returning women students in higher education. New York: Praeger Publishers.

Tourangeau, R., Sebring, P., Campbell, B., Glusberg, M., Spencer, B., & Singleton, M. (1987). The National Longitudinal Study of the High School Class of 1972, fifth follow-up, data file users manual. Washington, D.C.: Center for Education Statistics, U.S. Department of Education.

Vellez, W. (1985). Finishing college: The effects of college type. Sociological of Education, 58, 191-200.

Voorhees, R. A. (1987). Toward building models of commuinty college persistence: A logit analysis. Research in Higher Education, 26, 115-129.

Weidman, J. C. (1985, April). Retention of nontraditional students in postsecondary education. Paper presented at the annual meeting of the American Educational Research Association, Chicago. (ERIC Document Reproduction Service No. 261 195)

Witmer, D. R. (1983). Income predictions. The Review of Higher Education, 7, 35-47.

APPENDIX A

Variable Specification

Dependent variable	
Progress toward degree (1986)	1 = Degree completers 2 = Active degree seekers 3 = Inactive noncompleters
Independent variables	
Race/ethnicity	1 = Hispanic 2 = Black 3 = White [d]
Parental socioeconomic status	1 = Low [d] 2 = Medium 3 = High
High school program	1 = General [d] 2 = Academic 3 = Vocational/technical
College attendance (prior to 10/73)	0 = No enrollment in college by 10/73 [d] 1 = Enrolled in a two-year college by 10/73 2 = Enrolled in a four-year college by 10/73
Degree plans as of 1979	
For bacc. seekers:	1 = Less than bachelor's degree [d] 2 = Bachelor's degree 3 = Beyond bachelor's degree
For assoc. seekers:	1 = Less than two years of college [d] 2 = Two or more years of college, no degree 3 = Bachelor's degree or higher
Relationship pattern during period of enrollment	1 = Married or marriage-like relationship throughout 2 = Nonmarried throughout [d] 3 = Changed status

Childbirth during period of enrollment	0= No child born during period [d] 1= Child born during period
Age of youngest child at start of enrollment	0 = No child [d] 1 = Preschool child 2 = School-age child
Employment pattern during period of enrollment	1 = Employed full-time throughout [d] 2 = Other work pattern 3 = Not working throughout period
Number of jobs during period of enrollment	0 = Fewer than two jobs [d] 1 = Two or more jobs
Enrollment pattern during period of enrollment	1 = Intermittent [d] 2 = Continuous

Note: [d] refers to the reference category.